IN THE SPECIFICATION

The specification is amended as follows:

[0035] The swivel joint assembly 14 according to a first embodiment of the invention will now be described in more detail with reference to Figures 2 to 9. The assembly 14 has a lower portion 54 for coupling the gas, sewer and water lines into and out of the rotating structure, and an upper portion 55 for coupling the electrical power and service lines. ~~The lower portion 54 basically comprises~~ The assembly includes a first member comprising an inner fixed spool 56 and a second member comprising an outer swivel casing 60 rotatably mounted on fixed spool 56 as illustrated in Figures 3 and 6 to 8. The first and second members comprise the lower or plumbing portion of the swivel assembly. The upper portion comprises an electrical swivel assembly 55 and is mounted above the first and second members. The fixed spool 56 is coupled to the fixed base of the building via a torque bracket or lug 57 connected to torque tie 58 within pit 34, as indicated in Figure 2. The swivel casing 60 is connected to the rotating portion 10 of the building by support beams 62 which extend across the top of the casing as illustrated in Figures 2 and 3, and are secured at their opposite ends to the rotating shaft 30. The casing 60 is rotatably supported on a fixed brass bearing ring 61 at its lower end, which in turn is secured to torque bracket or lug 57, as indicated in Figure 3.

[0036] The fixed inner spool 56 is illustrated in detail in Figures 4 to 8 and has a central through bore 63 and a plurality of outwardly facing, annular chambers 64,65,66, and 67 separated by annular ~~rings~~ flanges 68,69,70,71 and 72 at the top and bottom of the spool and between each adjacent pair of chambers. The chambers 64, 65, 66, and 67 are open at their outer ends to define outwardly facing annular

openings, as illustrated in Figure 4. The swivel casing is a cylindrical member which rotates around the inner spool and has a diameter slightly greater than the diameter of the outer rings 68 to 72, so that it forms an outer wall for each of the annular chambers, as best illustrated for chamber 65 in Figure 6 and chamber 64 in Figure 7. Ring seals 76 are mounted on each annular ring to project outwardly into rotatable sealing engagement with the inner surface of casing, 60, sealing each of the chambers from the adjacent chambers and the exterior of the swivel joint assembly. One ring seal 76 is mounted on each of the upper and lower rings 68 and 72, while two spaced ring seals 76 are provided on each of the rings 69, 70 and 71 which separate adjacent chambers, for additional security. The seals are of any suitable resilient seal material of sufficient durability and reliability. Suitable seals for use as the ring seals 786 are Z-seals with a nitride or poly-vi lip and a fluorotrel base, as manufactured by Northern American Seals of Fresno, California.

[0037] The annular chambers 64 to 67 are of different sizes, depending on the required fluid capacity. Each chamber is connected to one or more of a first set of ports 78,80,84,86 extending upwardly from the lower end of the spool through the central portion of the spool and terminating in the respective chamber. The upper, relatively large annular chamber 64 is designated as a sewer chamber, the next chamber 65 is for gray or waste water, the third chamber 66 is for gas, and the fourth chamber 67 is for the clean water supply to the house. As indicated in Figures 4, 6 and 7, a series of three ports or bores 78 are connected to the fixed sewer line 38 at the lower end of the spool, and extend upwardly through the spool to terminate in chamber 64. A port or bore 80 of equivalent diameter to ports 78 is connected to a fixed, gray water outlet line 40 and extends upwardly through spool 56 to terminate at an outlet 82 in chamber 65, as indicated in Figures 4 and 6. A third bore or port 84 of

smaller diameter is connected to a gas line 40 at the lower end of the assembly 14 and extends upwardly through the spool to terminate at an inlet 85 into chamber 66. A pair of ports or bores 86 extends from fixed water lines 40 through the spool to terminate at an inlet 88 into the lowermost or clean water chamber 67, as illustrated in Figures 3, 4 and 8.

[0038] The outer swivel casing forms an outer, rotating cylindrical wall ~~for~~ extending over the outwardly facing openings of each of the chambers 64 to 67, and includes ~~various~~ a second set of ports 90,92,94,95 for connection to utility lines extending to various fixtures within the rotating part of the building, such as sinks, showers, baths, toilets, gas powered devices and the like. As best illustrated in Figures 3 and 7, three ports 90 project radially through the wall of casing 60 and communicate with the sewer chamber 64. A gray water port 92 is spaced beneath one of the ports 90 and communicates with the gray water chamber 65. A small diameter gas port 94 is positioned in the casing beneath port 92 and communicates with gas distribution chamber 66. Finally, a pair of clean water ports 95 is positioned below port 94 and communicates with water chamber 67, as illustrated in Figure 8. The various sewer and utility lines 42, 44, only some of which are shown in Figure 2 for illustration purposes, are connected to the various ports 90, 92, 94 and 95 and extend upwardly alongside the elevator shaft 30, exiting away from the shaft at the two or more floor levels for connection to the appropriate fixtures within the living areas of the rotating structure.

[0039] Each of the annular rings or flanges 68 to 72 defining the axial end walls of the various chambers also has a groove or indent 96 on its outer periphery which forms ~~a sensor~~ an annular sensor chamber. The indent 96 is located between the seal

rings on the annular flanges 69, 70 and 71 between adjacent chambers, and above or below the seal ring 76 on the end flanges 68 and 72, respectively. As illustrated in Figure 3, a pair of diametrically opposed ~~water~~ fluid sensors 98 is mounted on the outer swivel casing 60 to extend through sealed holes in the casing into the uppermost indent or chamber 96. A pair of diametrically opposed ~~water~~ fluid sensors 98 are also mounted to extend through the casing into the chamber 96 in flange 69. ~~These~~ Fluid sensors 98 comprise water sensors and will detect any leakage of sewer water from the sewer chamber 64. ~~Water~~ Fluid or water sensors 98 also project through the casing into the chambers 96 in flanges 70, 71 and 72, as indicated in Figure 3, to detect any leakage of gray water from chamber 65, or clean water from chamber 67. ~~Gas~~ Fluid sensors 99 also extend into the chambers 96 in flanges 70 and 71 at opposite ends of the gas supply ~~chamber 66, so~~ chamber 66. Fluid sensors 99 comprise gas sensors, so that these chambers have sensors for detecting leakage of either gas or water past the seals 76, as illustrated in Figure 3.

[0041] The upper or electrical ~~portion 55 of the~~ swivel assembly 55 is mounted on top of the plumbing part 54 of the swivel, as illustrated in Figures 3, 4 and 9. As best illustrated in Figure 9, the electrical supply swivel assembly 55 is a three conductor electrical swivel, and includes an inner, fixed ~~power conducting~~ contact core 100 which is secured to the upper end of the fixed utilities spool 56 via coupling sleeve 102 secured to the upper end of the spool by mounting bolts 104, and an end plug 103 of the core which is keyed to the coupling sleeve 102. The first member or spool 56 and the contact core 100 have aligned central through bores 63,263, as best illustrated in Figure 9. Electrical power supply lines 105 extend upwardly through the central through bore 63 in the fixed spool 60, into the central bore 263 of the

~~conductive~~ contact core 100, and are secured to three separate conductive rings 106,107 and 108 in the core 100, which are separated by insulator rings 110.

[0042] The electrical swivel assembly 55 has an outer ~~rotating~~ contact portion having a base plate 112 secured to the top plate 114 of the outer swivel casing 60 of the plumbing swivel, and a series of upwardly projecting posts 116 projecting upwardly from the base plate around a ring spaced outwardly from core 100, and connected to a top plate 118 at the upper end of the swivel. A junction box 120 is mounted on the rotating top plate 118 and the power supply lines 45 extend upwardly from box 120 along the elevator shaft and project outwardly for connection to various electrical sockets and appliances within the rotating portion of the house. Spring loaded brushes 122 project inwardly from the posts 116 to contact the three conductive rings 106,107, and 108, respectively. A connecting line 124 extends from each brush 122 to the junction box 120, as illustrated in Figure 9.

[0046] Figures 10 to 13 illustrate an alternative swivel joint apparatus 200 according to a second embodiment of the invention, which may be used in place of the apparatus 14 in Figures 1 and 2. In this embodiment, the ~~spindle~~ spool with axially spaced, annular and outwardly facing chambers is replaced by a ~~flat, disc-like fixed~~ first member comprising a lower, fixed circular member 202 having a plurality of radially spaced, upwardly facing annular grooves forming chambers 204,206,208,210 of varying volumes, depending on the nature of the fluid to be transported through the chambers. The fixed member 202 is suitably secured to part of the fixed base of the rotating building, in a similar manner to the previous embodiment. Member 202 has an upwardly directed, annular peripheral rim 212. As best illustrated in Figure 12, the chambers 204,206,208,210 have upwardly directed openings.

[0047] A second part or member 214 of the swivel apparatus comprises a generally flat, upper circular plate which is rotatably mounted on top of the fixed member 202 so as to extend over the ~~open~~ upper ~~ends~~ end openings of each of the annular chambers, forming a rotating upper wall portion of each chamber. Member 214 is located in position by an inwardly directed flange 213 on the upper end of the annular rim 212 of the fixed member. A plurality of screw fasteners 215 allow the members 202,214 to be separated for maintenance purposes. The second member or plate 214 is suitably secured to a rotating part of the building, in a similar manner to the previous embodiment. The fixed and rotating members 202,214 have aligned, central openings forming a passageway 216 for electrical supply lines 105 and service lines 134 from the fixed base of the housing to the electrical portion 55 of the swivel, which will be identical to the previous embodiment. It will be understood that a suitable fixed sleeve (not illustrated) may be secured to the central opening of the fixed member 202 and extend upwardly, with clearance, through the opening of the rotating member 214 in order to provide the fixed anchor for the non-moving parts of the electrical swivel.

[0049] Each of the utility chambers 204,206,208, and 210 is connected to at least one port of a first set of ports 222,224,226, and 228 extending upwardly from the lower wall of member 202 into the lower end of the chamber, and at least one port of a second set of ports 230, 232, 234, and 236 extending through the rotating member or plate 214. The outermost chamber 204 is for clean water supply to the house, the next chamber 206 is for gas, the third chamber 208 is for sewer discharge, and the fourth chamber 210 is for gray or waste water discharge. A first port 222 of the first set of ports is connected to a fixed water inlet line in the base of the building and extends through the lower wall of member 202 into chamber 204, as indicated in Figure 12. A

second port 224 of the first set is connected to a fixed gas inlet line and extends through member 202 into the chamber 206. A third port 226 of the first set is connected to the fixed sewer line and extends through member 202 into chamber 208. Finally, a fourth port 228 of the first set is connected to the gray water outlet line in the fixed base of the building and extends through member 202 into the chamber 210.

[0050] As best illustrated in Figures 11 and 12, ~~a plurality~~ the second set of ports extend through the rotatably mounted plate or second member 214 into the respective utility chambers, with the number of ports to each chamber dependent on the number of lines required to and from the rotating part of the building. It will be understood that a greater or lesser number of ports may be provided, as required. Not all of the ports are visible in the drawings. Each annular chamber will have one or more ports spaced around an annular ring-shaped region of plate 214 lying directly over the respective chamber. There may be at least two spaced water outlet ports 230 connected to the water chamber 204, and at least one gas outlet port 232 connected to gas chamber 206 for water and gas supply to the building. Three spaced inlet ports 234 communicate with the sewer chamber 208 for sewer discharge from plumbing fixtures within the building. Finally, at least one inlet port 236 communicates with the gray water chamber 210 for gray water discharge through outlet port 228.